

IN THE SPECIFICATION:

Please amend the paragraph beginning at page 2, line 20 and ending at page 3, line 1, as follows.

--In case it is used as a fixing apparatus, a recording medium bearing a toner image is introduced in and passed through a contact nip portion formed by a contact of the heater 113 and the pressure roller 115 across the fixing film 114, whereby an image bearing surface of the recording medium is heated by the heater 113 across the fixing film 114 to provide the unfixed image with thermal energy thereby softening and fusing the toner and fixing the image by heat.--

Please amend the paragraph beginning at page 3, line 10 and ending at line 16, as follows.

--In case of using the fixing film 114, it is in a slack state in a downstream side of the nip, so that it tends to follow a conveying direction of the recording medium in contact therewith. If the fixing film 114 remains in contact with the recording medium, a curvature at a separating portion decreases, thereby tending to cause a sticking jam to the fixing film 114.--

Please amend the paragraph beginning at page 3, line 17 and ending at page 4, line 24, as follows.

--In order to avoid such trouble, it is necessary, in the heat fixing apparatus of the film heating type, to facilitate the separation of the fixing film 114 and the recording medium at a downstream side of the pressed nip in the conveying direction of the recording medium. For

this purpose, as shown in Fig. 5, a separating projection 112a may be provided on the a heater holder 112 at a downstream end of the a heater 113. In the heat fixing apparatus of the film heating type, the curvature at the separating portion is made larger in order to prevent the sticking jam. In such configuration, the fixing film 114 and the recording medium remain in close contact over a long range without pressure even after passing the nip where the pressure roller 115 is in contact, as shown in Fig. 5. However, there results a following drawback. In a portion immediately after a ~~the~~ recording medium S is discharged from the nip of the fixing film 114 and the pressure roller 115, as shown in Figs. 6 and 7, the recording medium S shows a thermal expansion simultaneous with the release of the recording medium S from the constriction in the nip, and an undulation Sa in the longitudinal direction appears in the recording medium S because of a difference in the expansion rate between a portion constricted in the nip and a released portion after the nip. In such undulated state, a convex portion of the recording medium S contact longer, than a concave portion, with the fixing film 114. As a result, a convex portion of the recording medium S tends to receive ~~an~~ excessive heat in comparison with a concave portion, as shown in Fig. 7. Such undulation Sa is more noticeable in a recording medium S of a resinous film such as an OHP sheet or a glossy film, but also appears in plain paper or glossy paper.--

Please amend the paragraph beginning at page 4, line 25 and ending at page 5, line 4, as follows.

--In case the fixing film 114 is constituted for example of a polyimide film with a very small heat capacity (for example a thickness of 50 μm and a heat capacity per unit

area of $0.01 \text{ J/cm}^2\cdot\text{K}$), a difference in the amounts of heat received by such convex portion and concave portion is small and does not exert a significant influence on the image.--

Please amend the paragraph beginning at page 5, line 5 and ending at line 20, as follows.

--However, in case of employing a fixing sleeve constituted of an elastic layer, a releasing layer and a metal film, having a certain heat capacity (for example a heat capacity per unit area of $0.1 \text{ J/cm}^2\cdot\text{K}$), a convex portion in an undulation Sa generated in the recording medium S receives an excessive heat in comparison with a concave portion. Such excessive heat deteriorates a surface smoothness of the recording medium S in a convex portion thereof, thereby deteriorating a transparency along the convex portion of the undulation Sa as shown in Fig. 8 in case the recording medium S is an OHP sheet, or generating an unevenness in the glossiness in case the recording medium S is a glossy film. Also in an ordinary recording paper, a thermal offset is generated in the convex portion.--

Please amend the paragraph beginning at page 8, line 9 and ending at line 17, as follows.

--The image forming apparatus of the present embodiment is a full-color image forming apparatus employing an electrophotographic process, and is provided with four process stations 1a to 1d which are arranged substantially linearly in a substantially vertical direction for forming images of respectively yellow, magenta, cyan and black colors, and a conveying path 20 for conveying a sheet S.--

Please amend the paragraph beginning at page 8, line 18 and ending at page 9, line 4, as follows.

--The process stations 1a to 1d are at least provided with photosensitive drums ~~2~~(2a to 2d) for bearing latent images, and, around the photosensitive drums 2a to 2d, there are arranged charging rollers ~~3~~(3a to 3d) for uniformly charging the photosensitive drum ~~2~~(2a to 2d), exposure units ~~4~~(4a to 4d) for irradiating the photosensitive drums 2a to 2d with laser beams thereby forming latent images, developing means ~~5~~(5a to 5d) for developing the latent images formed on the photosensitive drums 2a to 2d with toners of corresponding colors (magenta, cyan, yellow and black) thereby forming visible images, and cleaning apparatuses 6 (6a to 6d) for removing toners remaining on the photosensitive drums 2a to 2d.--

Please amend the paragraph beginning at page 9, line 5 and ending at line 11, as follows.

--The developing means 5a to 5d are provided with developing sleeves ~~50~~(50a to 50d) for carrying the toners. The developing sleeves 50a to 50d are supported with a predetermined gap to the corresponding photosensitive drums 2a to 2d, and a developing bias is applied between the photosensitive drums 2a to 2d and the developing sleeves 50a to 50d.--

Please amend the paragraph beginning at page 9, line 12 and ending at line 22, as follows.

--An intermediate transfer belt 7 is supported by a driving roller 8, an idler roller 9 and belt supporting rollers 10, 11, and is rotated in a direction indicated by an arrow.

The intermediate transfer belt 7 is conveyed along a direction of arrangement of the process stations 1a to 1d, and toner images of respective colors on the photosensitive drums 2a to 2d are transferred ~~on~~ by the process stations 1a to 1d in succession onto a surface of the intermediate transfer belt 7 by primary transfer means ~~14~~ (14a to 14d), thereby forming a full-color image.--

Please amend the paragraph beginning at page 9, line 23 and ending at page 10, line 3, as follows.

--On the other hand, sheets S are contained and stacked in a feeding cassette 15 provided in a lower part of the apparatus, then are separated and fed one by one by a feed roller 16 from the cassette 15 and fed to a pair of registration rollers 17. The paired registration rollers 17 supply the fed sheet S to a nip between the intermediate transfer belt 7 and a secondary transfer roller 12.--

Please amend the paragraph beginning at page 10, line 4 and ending at line 16, as follows.

--On a lower most surface of the intermediate transfer belt 7, there is contacted the secondary transfer roller 12 which is so positioned as to oppose to the idler roller 9, and the secondary transfer roller 12 pinches and conveys the sheet S as a recording medium, in cooperation with the intermediate transfer belt 7. The secondary transfer roller 12 is given a bias voltage from a high voltage source 13, whereby the toner image on the intermediate transfer belt 7 is secondary transferred onto the sheet S, passing between the secondary transfer roller 12 and the intermediate transfer belt 7, and the sheet is then conveyed to a fixing apparatus ~~unit~~ 18.--

Please amend the paragraph beginning at page 10, line 25 and ending at page 11, line 9, as follows.

--The fixing apparatus 18 is provided, as shown in Fig. 2A, with a heater 55, a holder 53 for supporting the heater 55, a fixing sleeve (rotary member) 52 of a film shape provided around the holder 53, a reinforcing stay 51 constituted of a rigid member having a downward U-shaped cross section, ~~and~~ a pressure roller 57 opposed to the heater 55 across the fixing sleeve 52, and a guide 58. The sheet passing between the pressure roller 57 and the fixing sleeve 52 is pressed in a pressure nip portion a, and remains in close contact with the fixing sleeve 52 in a contact area b thereafter.--

Please amend the paragraph beginning at page 11, line 18 and ending at page 12, line 7, as follows.

--The sheet S, immediately after the discharge from the pressure nip portion a in a fixing operation, shows a thermal expansion as it is released from a constriction in the pressure nip portion a. Because of a difference in the expansion rate between a constricted portion in the nip and a released portion after the nip, an undulation Sa in the longitudinal direction is generated in the sheet S as shown in a magnified view in Fig. 2C. In such undulation Sa, a line convex to above is regarded as an upper end portion 63 of undulation, and a line convex to below is regarded as a lower end portion 62. The upper end portion 63 contacting longer with the fixing sleeve 52 tends to receive an excessive heat in comparison with the lower end portion 62, thereby resulting in an image defect as already explained in the conventional example.--

Please amend the paragraph beginning at page 12, line 8 and ending at line 12, as follows.

--Therefore, in the present embodiment, an internal orbit 54 of the fixing sleeve 52 at a downstream area of the nip, constituted of the pressure roller 57, the fixing sleeve 52 and the holder 53, is constructed as follows.--

Please amend the paragraph beginning at page 12, line 13 and ending at line 19, as follows.

--In the description, along a conveying direction of the recording medium S, a side of a supply source is defined as “upstream”, and a side of a conveying destination is defined as “downstream”. Also in the pressure roller 57 and the fixing sleeve 52, the terms “upstream” and “downstream” are defined in a similar manner.--

Please amend the paragraph beginning at page 12, line 20 and ending at page 13, line 16, as follows.

--In a cross-sectional relationship of the pressure roller 57, the fixing sleeve 52 and the heater 55 as shown in Fig. 2C, a downstream end of a surface of the heater 55, in the conveying direction of the recording medium S and opposed to the pressure roller 57, is taken as an original point. Also a direction of an imaginary plane (ideal surface) constituting an extension of the surface of the heater 55 at the side of the pressure nip portion a is taken as an x-axis, and a line perpendicularly crossing the x-axis at the original point is taken as a Y-axis. Also a downstream direction of the x-axis is taken as a positive direction thereof, and a direction toward

a side where the fixing sleeve ~~54~~ 52 is present, from the original point, is taken as a position direction of the y-axis. Under such definitions, the holder 53 is so shaped that ~~the an~~ internal ~~orbit surface~~ 54 of the fixing sleeve 52 is present in a first quadrant in a coordinate system defined by the x-axis and the y-axis. More specifically, the fixing sleeve 52 is separated from the pressure roller 57 immediately after passing the downstream end of the surface of the heater 55 opposed to the pressure roller 57.--

Please amend the paragraph beginning at page 13, line 17 and ending at page 14, line 4, as follows.

--In such configuration, the fixing sleeve 52 does not enter the side of the pressure roller 57 beyond the plane constituted by the heater surface, thereby eliminating a difference in the heat amounts given to the convex portion and the concave portion of an undulation Sa even in case such undulation Sa is generated in the recording medium, whereby a local deterioration in transparency and a deterioration in glossiness can be prevented. An angle formed by the imaginary plane (ideal surface) constituted by the extension of the surface of the heater 55 at the side of the pressure nip portion a and an imaginary plane passing through the original point and tangential to the internal curved surface of the fixing sleeve 52 is defined as a separation angle α .--

Please amend the paragraph beginning at page 14, line 5 and ending at line 18, as follows.

--A larger separation angle α allows to improve the transparency and the

glossiness, and to improve a separability between the fixing sleeve 52 and the recording medium S thereby preventing sticking of the recording medium S to the fixing sleeve 52. However, an increase in the separation angle α increases a bending stress in the fixing sleeve 52 at the end portion 61 of the heater 55, thereby gradually deteriorating the endurance of the fixing sleeve 52. For this reason, it is important to select the separation angle α so as to satisfy the transparency, glossiness, separability and endurance. For this reason, an experiment was executed to select such separation angle α , and results are shown in Fig. 3.--